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## The impact of relocation of chronic pain service from hospital setting to community centre on patient experience

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*Published in:*  
British Journal of Pain

*DOI:*  
[10.1177/2049463718762975](https://doi.org/10.1177/2049463718762975)

*Publication date:*  
2018

*Document Version*  
Peer reviewed version

[Link to publication in Discovery Research Portal](#)

### *Citation for published version (APA):*

Tsui, J. J., Davey, V., & Colvin, L. (2018). The impact of relocation of chronic pain service from hospital setting to community centre on patient experience: a single-centre audit. *British Journal of Pain*, 12(4), 220-229.  
<https://doi.org/10.1177/2049463718762975>

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## The Impact of Relocation of Chronic Pain Service from Hospital Setting to Community Centre on Patient Experience: A Single Centre Audit

Journal:	<i>British Journal of Pain</i>
Manuscript ID	BJP-17-0045.R2
Manuscript Type:	Original Manuscript
Keywords:	Chronic Pain, Urban Hospital, Community Hospital, Chronic Pain Service, Pain
Abstract:	<p><b>Abstract</b></p> <p><b>Background and Aims</b></p> <p>The Lothian Chronic Pain Service relocated from a university teaching hospital [Western General Hospital (WGH)] to a community centre [Leith Community Treatment Centre (LCTC)] in 2015. Transportation and geographical location were noted by staff to be potential challenges that could negatively impact on the patient experience. The objective of this study was to evaluate how relocating pain clinic from an urban-based hospital to a peripheral community centre on patient experience.</p> <p><b>Methods</b></p> <p>An assessment and audit of the impact of the relocation on the patient reported experience measure (PREM) of pain services was conducted. Using a nationally developed questionnaire, the patient reported experience from LCTC was prospectively collected in 2016 and was compared to historical data obtained from WGH in 2014 by NHS Scotland. All patients attending Lothian Chronic Pain Service clinics were deemed eligible for the audit. Patient demographics were compared between the two data sets. The impact of patient deprivation on patient experience was investigated using the Scottish Index of Multiple Deprivation (SIMD16).</p> <p><b>Results</b></p> <p>Data from 111 patients from LCTC was compared to 206 patients from WGH. Percentage of patients rating care as "excellent" was found to be significantly greater at LCTC than WGH (0.0049). However, overall patient rating of care from LCTC was not significantly different from WGH data and ratings were higher at LCTC. No correlation was found between patient deprivation and PREM.</p> <p><b>Conclusions</b></p> <p>There is no clear evidence that patient reported experience measure was negatively affected by the move from a university teaching hospital to a community setting. As this only reported experiences of patients who attended the service, further studies may be warranted to investigate the impact of patient nonattendance.</p>

Abstract

Background and Aims

The Lothian Chronic Pain Service relocated from a university teaching hospital [Western General Hospital (WGH)] to a community centre [Leith Community Treatment Centre (LCTC)] in 2015. Transportation and geographical location were noted by staff to be potential challenges that could negatively impact on the patient experience. **The objective of this study was to evaluate how relocating pain clinic from an urban-based hospital to a peripheral community centre on patient experience.**

Methods

An assessment and audit of the impact of the **relocation** on the **patient reported experience measure (PREM)** of pain services was conducted. **Using a nationally developed questionnaire, the patient reported experience** from LCTC was prospectively collected in 2016 and was compared to historical data obtained from WGH in 2014 by NHS Scotland. All patients attending Lothian Chronic Pain Service clinics were deemed eligible for the audit. Patient demographics were compared between the two data sets. The impact of patient deprivation **on patient experience** was investigated using the Scottish Index of Multiple Deprivation (SIMD16).

Results

Data from 111 patients from LCTC was compared to 206 patients from WGH. Percentage of patients rating care as “excellent” was found to be significantly greater at LCTC than WGH (0.0049). However, overall patient rating of care from LCTC was not significantly different from WGH data **and ratings were higher at LCTC**. No correlation was found between patient deprivation and **PREM**.

Conclusions

There is no clear evidence that **patient reported experience measure** was negatively affected by the move from **a university teaching hospital to a community setting**. **As this only reported experiences of patients who attended the service**, further studies may be warranted to investigate the impact of patient nonattendance.

## Introduction

Chronic pain is defined as pain that persists beyond the normal healing period, with a negative impact on function and quality of life (1). Pain is classified as chronic pain when its duration lasts or recurs for greater than 3 to 6 months (2)(3). Chronic pain can include pain classified by both of the two categories: nociceptive pain and neuropathic pain (4). The prevalence of chronic pain poses a significant problem to the health service since chronic pain afflicts a substantial proportion of the general population.

In the United Kingdom, 22% of general practice consultations in the National Health Service (NHS) are related to chronic pain (5). Studies on prevalence have shown that the percentage of the population suffering from chronic pain ranges from 18.9% in Canada (6) to 55.7% in the United States (7) depending on the methodology used. The proportion in Europe is also high with it afflicting 19% of adults (8). The cost for the management of chronic pain was also shown to be significant in the NHS: between 5 billion and 10.7 billion pounds (9). Costs are further incurred from compensation for the loss of employment due to chronic pain. Also, due to long term analgesic prescriptions, patients may be at risk of developing side effects and tolerance. Therefore, an efficient and effective treatment scheme is required to ensure optimum management of chronic pain patients.

The medical management of chronic pain is a challenge as many patients never reach symptom resolution (2). Patients often continue to have pain for the remainder of their lives and require chronic medical therapy, with chronic pain being accepted as a long-term condition. **Maintenance medication may be prescribed for the long-term treatment of chronic pain, with regular review by their primary care physician recommended (10).** For patients with complex problems, this may take place within a specialist chronic pain service. With increasing referral rate and financial pressures on specialist services, it is important to optimise attendance rates. Furthermore, a positive patient experience has been found to play an important role in having patients return and stay on the treatment regimen (11).

In 2014, Lothian Chronic Pain Service moved to Leith Community Treatment Centre (LCTC) from the Western General Hospital (WGH). The move was conducted to reduce scheduling conflicts for consultation rooms between different health specialities. As a university teaching hospital, the WGH has good public transport links from all areas within NHS Lothian. **Although**

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public transport is available, to LCTC, it is less extensive. **While an important study has shown transportation to be a barrier towards obtaining healthcare (12), our findings contrast Sibbald et al’s (13) findings and suggest that relocating specialist services to primary care can be associated with improved access for patients.**

**Thus, the aim of this study was to evaluate how relocating from an urban-based hospital to a peripheral community centre would have an impact on patients experience with the service.**

For Peer Review

## Methods

In this study, we completed a prospectively conducted survey and compared the result to a historical WGH data previously collected with patient care rating in 2013 and reported in 2014 in the NHS Scotland Audit (14). The project was approved by the Lothian Chronic Pain Service Quality Improvement Team. After consent from the patient or from their parents/guardian was obtained, all patients attending the Lothian Chronic Pain Service were determined to be eligible candidates for this study and their data was prospectively collected over a period of 6 weeks during July and August 2016. The patients were recruited to complete a data questionnaire and a patient experience rating survey. The format of the questionnaire and survey was based on the 2013 Healthcare Improvement Scotland (HIS) audit, which Lothian Chronic Pain Service participated in (14). The names of the patients and identification codes were not recorded.

The data questionnaire (see Appendix 1.) documented demographic information and different patient variables. Recorded variables were gender, age group, employment status, work absence status, period of absence, body part affected, and duration of symptoms.

The patient experience rating data was collected using the Patient Reported Experience Measure (PREM) developed by the 'Better Together' national patient experience programme (see Appendix 2.) (15). The survey allowed patients to rate their experience using five specific questions and one general care rating. The five specific patient questions were rated using five responses. Specific details regarding the results from these questions were not available from the WGH for analysis.

Overall patient experience in rating of care with the service was rated on a five-point scale (very poor, poor, average, good, excellent). Data collected at the LCTC service was compared to historical data collected from the WGH service in the 2013 audit by HIS.

The relation between deprivation and patient experience was also obtained. The deprivation decile was obtained using data from the Scottish Index of Multiple Deprivation (SIMD16) (16) using postal codes. Also, patients were identified as residing in and outside the city of Edinburgh through their postal codes. Postal codes EH1 through EH17 denote addresses within the boundaries of the city of Edinburgh. All other postal codes were considered to be from outside the Edinburgh area (17).

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Patients were classified as either “New” or “Return” by the physician. By definition, “New” patients have never attended Lothian Chronic Pain Service clinic before, while “Return” patients defined as patients who are currently attending clinics by the Lothian Chronic Pain Service.

Data analysis was completed using STATISTICA 10™ software (Stat Soft. Inc, USA). A two-proportion z-test was performed to determine any statistical difference between the proportions of the community centre and urban hospital (LCTC site vs. WGH site) between the patient population parameters and patient reported experience. A value of  $p \leq 0.05$  was set to determine significant results. The same statistical test was applied to the Edinburgh area vs. Non-Edinburgh area postal codes.

## Results

The patient populations from the LCTC and WGH centres were compared. There were 58 New and 53 Return patients included in the LCTC population.

For the prospective data collection, 124 patients were approached and 111 patients consented to the study resulting with complete data sets from the LCTC. For historical data comparison, there were 206 satisfaction forms were found and obtained from WGH. Among these 206 forms, many patients had missing demographic data. A total of only 140 complete data sets were documented from the WGH. Thus, some parameter responses were greater than 140 due to data from incomplete data sets. As information regarding individual patients was not available to determine which patients had incomplete data the total numbers varied from 140 to 206. The proportion variables within each total were used in the analysis.

**The demographic data for the LCTC and WGH were summarized in Table 1. Employment status was in Figure 1. Pain Site was displayed in Figure 2. Comparison of LCTC versus WGH patient care rating was presented in Figure 3. Significant difference was noted with more patients rating excellent in the LCTC group compared with the historical WGH group. The comparison between the patient experience rating of return LCTC patients versus all WGH patients overall and in relation to location (within Edinburgh vs outside Edinburgh) was exhibited in Tables 2 and 3. Patient responses to the Patient Reported Experience Measure (PREM) are displayed in Table 4. SIMD16 decile versus patient care rating was documented in Figure 4.**



Table 1. Demographic Data			
Patient Gender			
	LCTC (n=111)	WGH (n=140)	p value
Male	40	48	0.7729
Female	71	90	0.9568
Other	0	1	0.3723
Missing	0	1	0.3723
Patient Age			
	LCTC (n=111)	WGH (n=140)	p value
11 & Under	0	2	0.2061
12 - 15	0	0	N/A
16 - 24	3	6	0.5029
25 - 34	9	13	0.7432
35 - 44	24	30	0.9705
45 - 54	26	37	0.5855
55 - 64	21	26	0.9411
65+	28	25	0.1555
Missing	0	1	0.3723

[Insert Figure 1. Employment Status]

[Insert Figure 2. Pain Site]

[Insert Figure 3. Comparison of LCTC vs WGH Patient Experience Rating]

**Table 2a. Comparing Return Patient to Retrospective Overall Data from WGH**

Patient Care Rating	LCTC Return (n=53)	WGH (n=206)	p value
Very Poor	0 (0.00%)	3 (1.46%)	0.2014
Poor	0 (0.00%)	3 (1.46%)	0.2014
Average	1 (1.89%)	5 (2.43%)	0.8190
Good	6 (11.32%)	43 (20.87%)	0.1030
Excellent	45 (84.90%)	152 (73.79%)	0.0836

**Table 2b. Prospective Data from LCTC Comparing New Patient to Return Patient**

Patient Care Rating	LCTC Return (n=58)	LCTC Return (n=53)	p value
Very Poor	0 (0.00%)	0 (0.00%)	0.000
Poor	0 (0.00%)	0 (0.00%)	0.000
Average	1 (1.73%)	1 (1.89%)	0.9496
Good	6 (10.35%)	6 (11.32%)	0.9586
Excellent	51 (87.93%)	45 (84.90%)	0.6375

Table 3a. Return Patient by Location from Prospective Data Collected at LCTC			
Patient Care Rating	Return Within Edinburgh (n=36)	Return Outside Edinburgh (n=17)	p value
Very Poor	0 (0.00%)	0 (0.00%)	1.0000
Poor	0 (0.00%)	0 (0.00%)	1.0000
Average	1 (2.70%)	0 (0.00%)	0.4941
Good	3 (8.11%)	3 (17.65%)	0.3034
Excellent	34 (87.18%)	14 (82.35%)	0.6399

Table 3b. New Patient Experience Rating By Location from prospective data collected at LCTC			
Patient Care Rating	New Within Edinburgh (n=39)	New Outside Edinburgh (n=19)	p value
Very Poor	0 (0.00%)	0 (0.00%)	1.0000
Poor	0 (0.00%)	0 (0.00%)	1.0000
Average	1 (2.57%)	0 (0.00%)	0.4809
Good	4 (10.26%)	2 (10.53%)	0.9924
Excellent	34 (87.18%)	17 (89.47%)	0.8016

[Insert Figure 4. SIMD16 Decile vs Patient Experience Rating]

**Table 4. Patient Report Experience measure (PREM) at LCTC Site**

	<b>Yes, all of the time</b>	<b>Yes, most of the time</b>	<b>Sometimes</b>	<b>Not really</b>	<b>Never</b>	<b>Unanswered</b>
1. I was given the opportunity to be involved as much as I wanted to be in any discussions about me or about my care.	90	20	1	0	0	0
2. Do you feel that when you spoke to staff they were listening properly to what you had to say?	105	5	1	0	0	0
3. I felt that I had all the information and support I needed to help me make decisions about my care or treatment.	94	14	3	0	0	0
4. I felt that staff took account of the people that matter to me, and how much I wanted them to be involved in my care or treatment.	93	6	4	2	1	5
5. Do you feel that you got the care you needed?	91	12	7	0	0	1

## Discussion

The main finding of this study was that the relocation of the Lothian Chronic Pain Service from an urban hospital (WGH) to a community centre (LCTC) did not negatively affect the reported rating of patient experience. In fact, results showed that ratings were found to be slightly higher for LCTC. However, this finding should interpret with caution as there may be the result of confounding factors and study limitations.

One possible positive influencing factor would be the availability of community-based care at the LCTC. Despite most key resources such as psychology consultations being readily available for both LCTC and WGH sites, **LCTC’s clinic being in a community-based health centre does benefit from having not only a dedicated physical clinic space but also a smaller specialized support team to provide continuity and focused service. When considering the answers to one of individual items of the PREM questions, the strength of this dedicated service is clearly demonstrated by the fact that almost all patient (94.5%) felt the staff were all the time listening properly to what they had to say (Table 4).** While the extent of this impact on patient experience remains unknown, these dedicated resources may provide an advantage compared to the busier hospital setting at WGH with its shared clinic space and staff. Furthermore, appointments were held in different areas within the hospital. Such that, patients would have to find and walk through busy corridors trafficked by staff and patients from other departments including the hectic emergency room and intensive care unit. These may be daunting and intimidating to vulnerable patients particularly those suffering low mood from their condition. In fact, a comparable observation in other clinical settings by psychiatric patients was reported finding a patient preference for community-based services over hospital-based services (18).

Another factor may be that the patients surveyed in LCTC consisted of more retired patients and those who were not working. With no alternative pain clinics existing in the region, we were surprised with the change in surveyed employment status. This incidental discrepancy of employment status in two sites may have introduced confounding biases into the analysis. More importantly, it may indicate a potential worrisome problem where patients who have difficulty with transportation may have been forced to seek care from their local primary care physician as an alternative or not receive care at all. Thus, further study is needed to investigate the cause of this finding.

Nevertheless, retired patients in these circumstances may often have more time to spare in transport to the LCTC, despite being further away from the more accessible location of WGH. While NHS managed transportation was more limited at the LCTC site, many local bus links were available. Since a greater number of retired patients should likely also be eligible for old age benefits which provided with free travel on eligible Scottish National Entitlement Card holders on local major buses lines (i.e. Lothian buses<sup>TM</sup>), this may lessen the transportation burden (19). On the other hand, there may be difficulty for patients who commute by automobile. This is because the LCTC has been noted to not have adequate parking facilities compared to WGH. Patients who are working and own cars may find this to be a major inconvenience. Interestingly, it has been shown that patients who hold driving licenses were more likely to access healthcare services than those who do not due to the ability to travel greater distances to clinics (20). Finding a solution to increase the availability of parking spots at LCTC may be a worthwhile goal to improve patient adherence.

In this study, we noticed that there was a substantial and significant number of WGH patients reporting their pain as multiple sites and an overall lower patient experience rating compared to LCTC. Since patients suffering from chronic widespread pain (CWP) can be more challenging to treat and that the impact of pain in multiple sites can affect every day physical activities (21), one may argue that the high incidence of CWP at WGH may have contributed to a lower patient rating. A limitation of the data is that the WGH data was from the national audit (2014) and individual data sets were not available to allow for proper verification and identification of CWP patients and their respective ratings. In contrast, our prospective findings from our small sample size demonstrated contrary results with all 18 CWP patients (i.e. with their pain classified as “multiple sites”) rating their care as excellent.

The reason why there is such a discrepancy between the two patient populations remain unknown. There are a number of possible explanations that would require further study. One explanation might be that there was a difference in how the form completion was explained or administered by the staff at the two sites. For example, pain at “multiple sites” may have been interpreted as multiple symptoms, with a varying explanation from the staff. Alternative explanations include a change in referral patterns either due to the move or changing demographics.

Another observation is that there was no statistical difference between the geographical location of patients and the corresponding deprivation index. While the LCTC is situated well within the Edinburgh city area its position in the north-east would be geographically far away from patients situated in West Lothian, results did not find an association between patients located out of Edinburgh and their patience experience rating. In this study, we also performed analysis of the “return patients” at LCTC compared with WGH patients. However, it is important to point that we assumed most “return” patients at LCTC were patients who had their care received previously at the WGH with an exception of a few patients who had been seen multiple times at LCTC since this prospective survey was conducted shortly after the LCTC opened. With this assumption, we anticipated that the analysis of the “return” patients-compared with WGH patients should reflect the impact on relocation on same group of patients. Despite this, we found that there was a higher patient experience rating in the “return” group at LCTC but the difference was not statistically different. No doubt, this could have been in part due to inadequate sample size (**Table 2a**). Empirically, these “return” patients were also compared to “new” patients with similar rating for LCTC site (**Table 2b**). **This is in contrast to the findings from previous study by Syed that indicated that transportation was a potential barrier towards obtaining healthcare (12).** The reason why there may not have been a large difference in patient rating of care may be attributed to selection bias of the patients. Staff members have mentioned that arranging transport for the patients had become increasing difficult for the patients. This may have prevented some affected patients from arriving at the clinic. Resultantly, if this were to be the case selection bias would have occurred as only patients who have could travel to the clinic would have been surveyed.

Moreover, patient deprivation index did not appear to be associated with **patient reported experience rating**. An association may not have been demonstrated due to the small sample size of only 74 patients as not all patients were able to provide full postal codes on completion of their study. Therefore, not all patients could have an area deprivation index number associated with their data.

## Limitations

One major limitation of this study that may be affecting the results is the lack of detail in the patient experience survey design. Having only five parameters to measure patient experience may have resulted in the distribution of answers being skewed almost entirely as “excellent”. While additional information was recorded using the PREM questionnaire, a similar pattern of heavy skewing of responses to the positive end of responses was observed. This made analysis regarding different variables and their relation to patient experience to be inconclusive or difficult to analysis. One way to improve future studies would be to use a more detailed scale as a measure of patient experience. **In addition, a future study should be not only look at patient experience but also include patient function by using the EQ-5D-5L study to measure health outcome which was used in WGH (22).** However, this system was not repeated due to licensing issues with the questionnaire.

The aim of this study was to use the same measure for assessing patient experience, as was used when the service was based in a hospital setting, to allow comparison, and whether the setting of the clinic influenced the patient experience. The focus of the study was not transport to the clinic, but we acknowledge that this would have been relevant information. One problem would have been the lack of data on this in the original audit. The free text did allow for comments on transport: indeed, in the survey carried out at the hospital based site, parking (or lack of it) was highlighted as an issue. Ideally, a detailed survey would directly measure a change in patient experience and their satisfaction relating to the change in location. Different factors such as patient ideas on transportation issues or the change of facilities can also be explored through the use of direct questions. Since the study previously conducted at WGH mainly focused on the patient reported experience rating of care, we used the same survey format for the ease of comparison. Therefore, the conclusions reached by this study may have been largely influenced by the format of the question addressing rating of patient care instead of overall satisfaction with the change in location.

Another limitation that can be amended is the possible selection bias of patients who respond well to the service. Patients who experience trouble with transport to the LCTC may have been excluded from the results. Therefore, their satisfaction with the change would not have been assessed. Outreach feedback from all patients registered to the centre may be valuable in minimising this selection bias.



WGH data was also limited in the way that it was recorded. The data did not have full results for each patient accessible for comparison. Therefore, it is not known if incomplete responses would have affected the overall proportions of different parameters. Moreover, the WGH data did not include postal code data, so comparison before and after the relocation was not possible. To improve this limitation access to the original database may be beneficial for comparison. With this data, different variables can be attributed to individual patients and more in-depth analysis can be done.

Also, postal code data only provides a general marker of difficulty for transportation to the LCTC. Distance is not always the most important factor contributing to the difficulty of a commute as certain regions outside of Edinburgh may have direct bus routes into the city. Therefore, it may be important to obtain information regarding specific communities that lack convenient bus routes to the LCTC. An improvement that could be implemented in future studies can be the inclusion of a transportation survey to assess how and with what difficulties patients experienced when commuting to the LCTC.

**In conclusion, the present findings of this study provide valuable insight into the effects of moving the Lothian Pain Service from WGH to LCTC on patient experience rating of care.**

It is reassuring from the perspective of the service that ratings on care have not been adversely affected by the relocation. Actions that could improve the service would be to investigate for patient attrition by tracking any decrease in clinic attendance and counting the number of cancelled appointments. In addition, developing a solution to the parking shortage and arranging NHS transportation for the LCTC would be beneficial.

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## Table Legends

### Table Legends

Table 1. Demographic Data

Table 2a. Comparing Return Patient to Retrospective Overall Data from WGH

Table 2b. Prospective Data from LCTC Comparing New Patient to Return Patient

Table 3a. Return Patient by Location from Prospective Data Collected at LCTC

Table 3b. New Patient Experience Rating by Location from Prospective Data Collected at LCTC

Table 4. Patient Report Experience measure (PREM) at LCTC Site

## Figure Legends

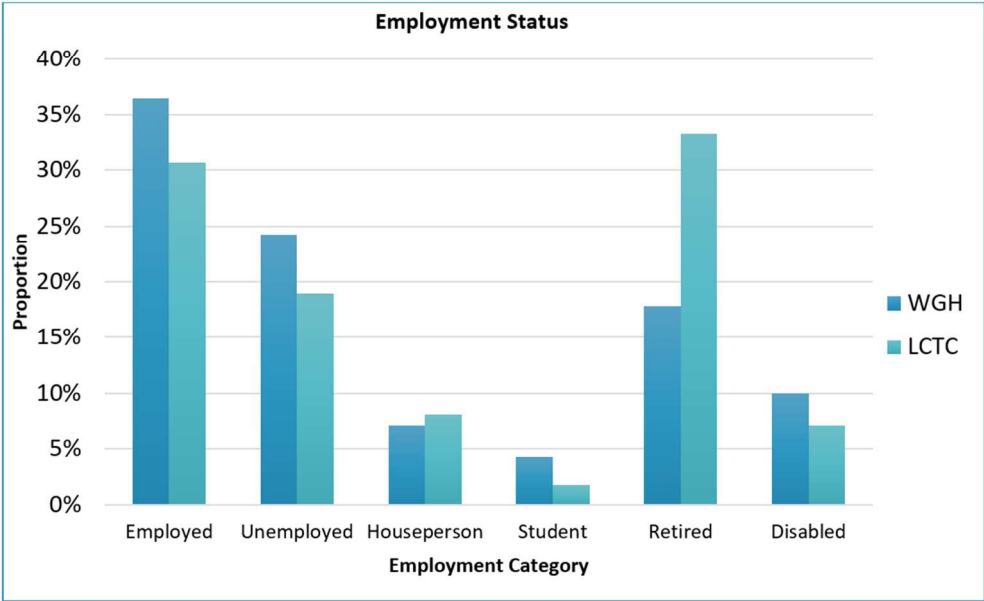
Figure 1. Employment Status

Figure 2. Pain Site

Figure 3. Comparison of LCTC vs WGH Patient Experience Rating

Figure 4. SIMD16 Decile vs Patient Experience at LCTC Site

Figure 1. Employment Status



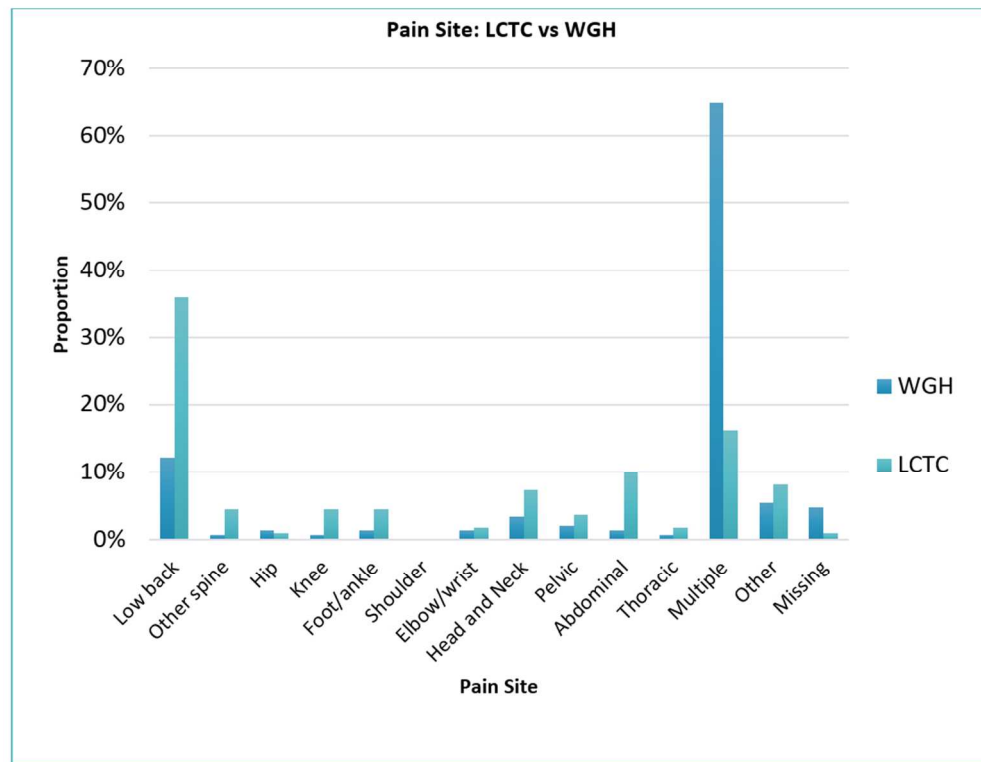
**Figure 2. Pain Site**

Figure 3. Comparison of LCTC vs WGH Patient Experience Rating

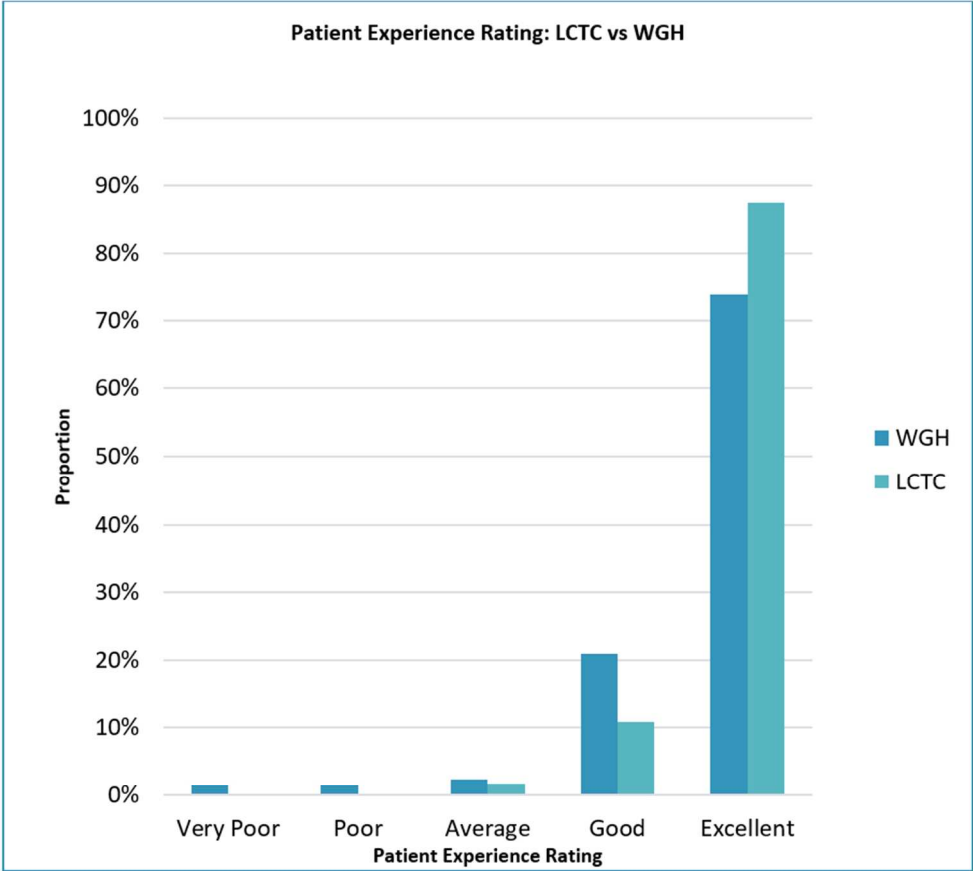


Figure 4. SIMD16 Decile vs Patient Experience Rating

